

WHAT IS CLAIMED IS:

1 1. An apparatus for performing segmentation-based
2 enhancements of a video image, said apparatus comprising:

3 an input buffer for storing video frames of an incoming
4 video signal;

5 a segmentation controller capable of segmenting a first
6 stored frame into a plurality of segments, each of said plurality
7 of segments comprising a plurality of pixels having at least one
8 common property;

9 an image processor capable of calculating a probability
10 function associated with at least one pixel in said first stored
11 frame, said probability function indicating a probability that said
12 at least one pixel belongs within a first selected one of said
13 plurality of segments; and

14 an enhancement controller capable of enhancing a
15 parameter of said at least one pixel as a function of said
16 probability function of said at least one pixel.

1 2. The apparatus as set forth in Claim 1 wherein said
2 segmentation controller segments said first stored frame into said

plurality of segments as a function of said probability function.

3. The apparatus as set forth in Claim 2 wherein said enhancement controller increases an amount of enhancement of said parameter as a value of said probability function increases.

4. The apparatus as set forth in Claim 3 wherein said enhancement controller decreases an amount of enhancement of said parameter as a value of said probability function decreases.

1 5. The apparatus as set forth in Claim 1 further comprising
2 a memory capable of storing a segmentation algorithm, said
3 segmentation algorithm comprising instructions executable by said
4 segmentation controller for segmenting said first stored frame into
5 said plurality of segments.

1 6. The apparatus as set forth in Claim 5 wherein said memory
2 is further capable of storing an enhancement algorithm, said
3 enhancement algorithm comprising instructions executable by said
4 enhancement controller for enhancing said parameter of said at
5 least one pixel.

1 7. The apparatus as set forth in Claim 1 wherein said
2 probability function associated with at least one pixel is
3 calculated from the (y,u,v) color values associated with said at
4 least one pixel.

1 8. A television receiver comprising:

2 demodulation circuitry capable of receiving an incoming
3 RF television signal and generating therefrom a baseband video
4 signal capable of being displayed as a plurality of pixels on a
5 video display; and

6 post processing circuitry, coupled to an output of said
7 demodulation circuitry and receiving therefrom said baseband video
8 signal, capable of performing segmentation-based enhancements of a
9 video image, said post processing circuitry comprising:

10 an input buffer for storing video frames of an
11 incoming video signal;

12 a segmentation controller capable of segmenting a
13 first stored frame into a plurality of segments, each of said
14 plurality of segments comprising a plurality of pixels having
15 at least one common property;

16 an image processor capable of calculating a
17 probability function associated with at least one pixel in
18 said first stored frame, said probability function indicating
19 a probability that said at least one pixel belongs within a
20 first selected one of said plurality of segments; and

21 an enhancement controller capable of enhancing a
22 parameter of said at least one pixel as a function of said

probability function of said at least one pixel.

9. The television receiver as set forth in Claim 8 wherein said segmentation controller segments said first stored frame into said plurality of segments as a function of said probability function.

10. The television receiver as set forth in Claim 9 wherein said enhancement controller increases an amount of enhancement of said parameter as a value of said probability function increases.

1 11. The television receiver as set forth in Claim 10 wherein
2 said enhancement controller decreases an amount of enhancement of
3 said parameter as a value of said probability function decreases.

1 12. The television receiver as set forth in Claim 8 further
2 comprising a memory capable of storing a segmentation algorithm,
3 said segmentation algorithm comprising instructions executable by
4 said segmentation controller for segmenting said first stored frame
5 into said plurality of segments.

1 13. The television receiver as set forth in Claim 12 wherein
2 said memory is further capable of storing an enhancement algorithm,
3 said enhancement algorithm comprising instructions executable by
4 said enhancement controller for enhancing said parameter of said at
5 least one pixel.

1 14. The television receiver as set forth in Claim 8 wherein
2 said probability function associated with at least one pixel is
3 calculated from the (y,u,v) color values associated with said at
4 least one pixel.

1 15. A method of performing segmentation-based enhancements of
2 a video image comprising the steps of:

3 storing video frames of an incoming video signal in an
4 input buffer;

5 segmenting a first stored frame into a plurality of
6 segments, each of the plurality of segments comprising a plurality
7 of pixels having at least one common property;

8 calculating a probability function associated with at
9 least one pixel in the first stored frame, the probability function
10 indicating a probability that the at least one pixel belongs within
11 a first selected one of the plurality of segments; and

12 enhancing a parameter of the at least one pixel as a
13 function of the probability function of the at least one pixel.

1 16. The method as set forth in Claim 15 wherein the step of
2 segmenting segments the first stored frame into the plurality of
3 segments as a function of the probability function.

1 17. The method as set forth in Claim 16 wherein the step of
2 enhancing increases an amount of enhancement of the parameter as a
3 value of the probability function increases.

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1 18. The method as set forth in Claim 17 wherein the step of
2 enhancing decreases an amount of enhancement of the parameter as a
3 value of the probability function decreases.

1 19. Computer-executable instructions stored on a computer-
2 readable storage medium and capable of performing segmentation-
3 based enhancements of a video image, the computer-executable
4 instructions comprising the steps of:

5 storing video frames of an incoming video signal in an
6 input buffer;

7 segmenting a first stored frame into a plurality of
8 segments, each of the plurality of segments comprising a plurality
9 of pixels having at least one common property;

10 calculating a probability function associated with at
11 least one pixel in the first stored frame, the probability function
12 indicating a probability that the at least one pixel belongs within
13 a first selected one of the plurality of segments; and

14 enhancing a parameter of the at least one pixel as a
15 function of the probability function of the at least one pixel.

1 20. The computer-executable instructions stored on a
2 computer-readable storage medium as set forth in Claim 19 wherein
3 the step of segmenting segments the first stored frame into the
4 plurality of segments as a function of the probability function.

21. The computer-executable instructions stored on a computer-readable storage medium as set forth in Claim 20 wherein the step of enhancing increases an amount of enhancement of the parameter as a value of the probability function increases.